

THE BLIND MAN'S WORLD



1966

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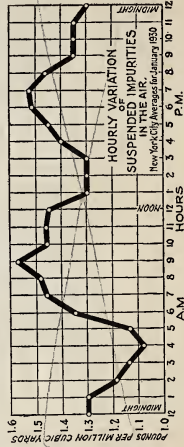
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HOUSE FOR THE BLIND**

The Blind Man's World

HOW THE WORLD "APPEARS" to one who can not see it is discusst in a new book, "The World of the Blind," by Prof. Pierre Villey, himself blind from infancy.

Professor Villey assures us that current notions about the powers and deficiencies of the blind are mostly errors. In a review of his book in *The British Medical Journal* (London), we read:

"There have been few records that seek to show us how the blind man registers his impressions of the world about him. The author lost his sight at the age of four and a half years. In his complete darkness 'no visual impressions could come to him, no visual memories.' Yet he so far overcame his dis-



From the New York Times

How New York City's Air Pollution Fluctuates Hourly

Chart Prepared by New York's Meteorological Observatory in Central Park Based on January Averages Shows that Even in Our City's Dusty Season From the Low Point at 4 A. M. to the Peak at 9 A. M.

ability that he now holds the Chair of Literature at Case University. He records with delight the complete transformation in the circumstances of the blind. In former times they were credited with almost occult faculties, but their real abilities were neglected. Now they can receive a culture adapted to their needs, and lead a useful existence.

"But the prejudice of the existence. There is still the idea that behind sightless eyes and a face without animation everything is dulled, that the intelligence, the will, the sensations, and the faculties of the soul are numbed and, as it were, stupefied. The purpose of the author is to show how false is this impression. He complains that many who have investigated the mind of the blind have not distinguished between loss of sight and loss of other powers. If the accident which has destroyed the sight has not touched the brain, the integrity of the intelligence is safe. Professor Villey agrees with Aristotle, who said that sight was the most important of all the faculties for the needs of animals, but that for intelligence hearing was the more necessary. 'In manual work, the deaf man who sees is superior to the blind man. From the intellectual point of view, I am convinced that the position of the blind man who hears is preferable to that of the deaf man.' He agrees that there is no truth in the alleged substitution of senses in the blind—that is, the compensatory increase of sense of hearing and touch. Tested with the esthesiometer, the blind man shows no greater acuity of perception than the sighted. 'A singular thing, even, is that the forefinger of the blind—that is, the reading finger and the one that is exercised the most—is less sensitive than the other fingers. Also, a given noise is not noticed by a blind person at a greater distance than by a person who sees.'"

"Professor Villey's summing up of the discussion of what sort of spatial images are formed in the mind of the blind is good. He has what I should style a veritable tactile sight. The word sight is the only one which renders these apparitions which spring up in the brain, free from all conscious muscular impressions, from all representation by fingers and hands. They are less rich, certainly, less complex, and considerably less extensive than visual images, but, like them, one and many at the same time are perceived, in their entirety and also in detail, by the inner eye of consciousness. The attitude that normal folk should hold to the blind he thinks may be summed up thus: 'On the door of one institution for the blind are these words: "Visitors are requested not to utter any expressions of pity." The director of that school is certainly a psychologist."

When the Air Is Purest

IF A CITY-DWELLER wishes to take the air when it is at its best, he should rise early and take his constitutional at 4 A. M.

At 9 A. M. it is at its worst, so that right after breakfast is not the best time to breathe it.

Observations in New York that bring out these facts are thus described in *The Times* of that city:

"Using a new apparatus that 'breathes' the city air and registers its dust and smoke content every fifteen minutes, the New York Meteorological Observatory, in Central Park, has found that every million cubic yards of New York's atmosphere contained, during January, an average of 1.35 pounds of impurities. The instrument, which was installed on January 1, showed the city's air to be purest at 4 A. M. and most polluted at 9 A. M., according to a report of the first month's operation, made public yesterday by David R. Morris, meteorologist.

"The apparatus, which is known as the Owens automatic air-filter, and is much used in England, keeps an automatic record throughout the day and night. It was lent by the Stevens Institute of Technology. Samples of air examined each noon by another instrument, in use at the observatory for a year, showed a higher dust content this January than last year. This year the average for the month was 61.199 particles per cubic foot, compared to 50.524 last year. January is usually the dirtiest month of the year.

"The pollution of the air shown by the Owens filter varied from 0.27 pound of impurities per million cubic yards, to 2.70 pounds on January 27.

"Mr. Morris has prepared a chart showing the average variation during the day, in January, of the air pollution. Starting from the low point, at 4 A. M., when the air is at its purest, the curve gradually rises, as fires are made in homes and offices, until it reaches its peak, at 9 A. M. It declines until after noon, and does not begin to rise again until 3 o'clock, probably because the home fires are started up again in preparation for the evening. The second peak is reached at 7 P. M., and thereafter the curve declines almost steadily, with a slight retardation between 9 and 11.

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Australia Welcomes Insect Immigrants—Three hundred million hugs of one variety have been released in Australia, says a recent report of the Commonwealth Frickley-Pear Board in Brisbane, Queensland, as a part of that continent's long campaign to rid itself of the American cactus plant, locally called the prickly pear, introduced there years ago, which has now spread as a weed over vast areas of once-useful land. Dr. E. E. Free thus comments in his *Week's Science* (New York):

"In Mexico and the southwestern parts of the United States, where these cactus plants are native, they have many insect and other enemies. The result is that they seldom spread outside the purely desert parts of the country, where almost no other plant will grow, and where the land is virtually useless. In Australia, where no cactus ever had lived, these insects and other cactus-eaters were lacking. Once introduced there, the cactus found nothing to limit its growth. Man, as usual, is paying the bill for the careless introduction. Some years ago scientific men conceived the idea of introducing into Australia insect enemies of the cactus plants from other lands. One of these was the cochineal insect, which lives on the cactus plants in Mexico, and from which the red dye of that name is made."

How Common Things Work: Electric Bells and Buzzers—XVIII

THE USE OF BELLS AS SIGNALS is very old. Formerly the connection between the bell and the one who rang it was by cord or wire, and it was rung by pulling a knob or a hanging rope. Now electric bells are commonly used, and these are sounded by completing a circuit by pressing on a button. When the signal makes a rattling instead of a ringing sound the device is called a "buzzer"; but the principle is the same. They are both simple adaptations of the electro-magnet. Soft iron around which there is a coil of wire becomes a magnet when a current flows in the coil, and ceases to be one when the current stops. By making and breaking the current at a distant point, the iron may be made to attract another piece of iron or to let it go. Says Alfred M. Butler in his "Household Physics":

(M. Barrows & Company, Boston):

"In the electric bell we have perhaps the commonest use to which the electro-magnet has been put. There are two kinds of bells: one in which the bell rings but once when the current flows; and the other, called the vibrating or intermittent bell, which keeps ringing as long as the push-button is pressed."

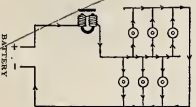
"In the single-stroke bell, when the button is pushed down, thus closing the circuit between the battery and the bell, the current continues to flow through the electro-magnet just as long as the button is held, and the iron bar or armature is pulled over and held against the magnet. The clapper strikes the bell once only, when the bar is first pulled over. When the push-button is released, the spring pulls it back, because the magnetic attraction has ceased."

"In the vibrating bell, even tho the push-button is kept down, there is an arrangement in the bell itself whereby the circuit is broken. At the first contact of the push-button, a current flows through the coils, producing a magnetic effect that attracts the soft-iron bar and causes the clapper to strike the bell. This action, however, at the same time breaks the circuit, and the attraction between the magnet and the bar ceases. The spring makes the bar go back, when contact again sets up a current in the coils, and the striking process is repeated. This intermittent action goes on as long as the circuit is completed at the push-button."

"Fire-alarm bells are sounded by means of a hammer operated by clockwork. The clockworks are set in motion by an electro-magnet, which, when the current flows, releases a catch."

INSTEAD of using current from a battery for ringing bells, an alternating electric-light current may be employed, but it must be "stepped down"—that is, its voltage or intensity must be reduced. This is done with a "transformer," which may change the 110 volts of an alternating lighting-circuit down to the 5 to 15 volts needed for bells. The transformer, say Black and Davis in their "New Practical Physics" (Macmillan Company, New York), is "merely an iron core and two coils of wire." They go on, in substance:

"In any transformer there are two coils side by side on a common iron core. When an alternating current is set up in one coil—called the primary—it magnetizes the iron core, causing waves of magnetic flux first in one direction, and then in the opposite direction. Since this magnetic flux passes through the second coil—called the secondary—as well as the first,



Electric Door
Latch

A system of push-buttons and wiring for opening an apartment-house door

"REPAIRS of electric bells is treated in some detail, in "Fix It Yourself," by Arthur Waking, house workshop editor of *Popular Science Monthly* (New York, Popular Science Publishing Company). He says:

"When repairs to the bell system become necessary, the most likely causes in their order follow:

"Dead batteries—Replace them.

"Dirty or corroded contacts in button—Open up button and scrape clean.

"Bells out of adjustment—Adjust. If transformer is used, a fuse may be blown. Test and replace with new fuses.

"Broken wires—Track and put in new wires where needed. "Of all the causes, the most usual is dead batteries. If you have, or can obtain, an ammeter, you can test them; when new they should read around 25 or higher. If they register but 10, their energy is nearly gone, and they must be renewed.

"In cases where one bell only is out of order, it is safe to assume it is not the batteries. Generally it is found that a button has become corroded with the washer. Take a piece of sandpaper and brighten them."

"To adjust a bell for ringing on a transformer, the gap at the breaker-points, should be smaller than when used on batteries because a more rapid make and break is needed to keep ahead of the alternations of the current. Draw a piece of fine sandpaper between the contacts first, try the bell, and then, if some modification is needed, loosen the set-screw and adjust, so that when the hammer is pressed against the bell, there is a small gap of about the thickness of a very thin calling-card between the screw point and the spring contact. Closing the gap produces a more shrill, rapid ring (most suitable for transformer operation), while opening it gives a slower and more musical sound.

"When employing a bell-transformer this is best to use the more modern 'iron-box' type of bell, which is designed for rapid operation, as old-style wooden kinds are sometimes hard to adjust.

"Door-openers, when at fault, often need a little oil in the mechanism. The oil should be applied once a year."

it induces an alternating current in the secondary, whose voltage is less when the number of turns in the coil is less than in the primary. If there are one-tenth as many turns, the voltage will be reduced to one-tenth."

WHAT use for electric bells is thus described in Butler's book, named above:

"The commonest use of an electric bell in a house is for signaling purposes at the front and back doors; and in the dining room, the bells being located in the kitchen and the batteries in the cellar. In the case of two bells, one wire from the bells to the battery serves for both. A third bell may be used for the dining-room.

"Sometimes one push-button is used to ring two bells at the same time, one upstairs and the other downstairs. In apartment-houses, control over the door-latch may be secured through an electro-magnet operated by means of push-buttons, one in each apartment. When any button is pushed, thereby closing the circuit, an electro-magnet acts to release the catch on the door frame. The action is like that of a single-stroke bell, with several push-buttons on the circuit.

"In most cases, failure of bells to ring is due to weak cells which need either a new zinc or a new solution. If dry cells are used, new ones must be bought."

"If the trouble is not due to the cells, there is probably trouble with the contact at the push-button or on the vibrator of the bell. The least probable cause of trouble is a break in the wire somewhere, unless it be at the binding-posts of the bell, or of the cells, or at the push-button screws."

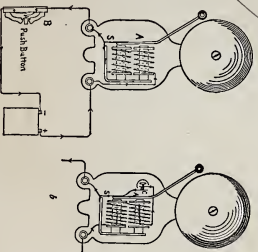


Illustration from "Household Physics," M. Barrows & Co., Boston

Two Kinds of Electric Bells

(a) Single stroke bell. (b) Vibratory bell.

Brookline Massachusetts

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